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The Files - RD-125, T.O. 5 26 March 1959

25X1A9a [redacted]

Trip Report - WS-1 Miniature Coaxial Cable System

25X1A5a1 1. On 19 March 1959 a meeting was held with representatives of the [redacted] at their plant in Philadelphia, Pennsylvania. The purpose of this meeting was to discuss progress on Contract RD-125, Task Order 5. Those present were:

25X1A5a1 [redacted]

25X1A9a [redacted] - OC-ESR/EA
- OC-E/R&D-EP

2. This task was initiated in June 1957 and called for the development of a miniature coaxial cable transmission system for one-way operation at a maximum distance of 10 miles with unity gain over a frequency range of 300 cps to 150 kc. The task was an 18-month development which has recently been extended to 20 months to allow for an increase in scope. The task calls for delivery of 2 systems by 31 March 1959.

3. All of the hermaphrodite coaxial connectors have been delivered by the subcontractor, and the installation of these connectors to the coiled cable sections has been 75% completed. Electrical testing of the first prototype, receiving terminal, 10 miles of coiled cable, and transmitting terminal, was scheduled to begin in a few days. Delivery of the first prototype system by 31 March was assured. Delivery of the second prototype can be made by 31 March 1959; however, it is felt that at this time the delivery should be delayed until the cable can be uncoiled in the operational tests. This action is considered necessary because of an unexplained rise in the frequency response curve. The rise in the curve may be due to the coiled cables. In the first prototype, compensation has been used in the repeaters to flatten out the response. If this is the case, changes in the repeaters will have to be made on the second prototype prior to final assembly. Since the repeater amplifiers are potted, a change after delivery would necessitate fabrication of new repeater amplifiers.

25X1A5a1 4. The operation of this unit was demonstrated to the writer by [redacted]. The terminal equipment was connected to 3 miles of cable with the repeater amplifiers appropriately connected. The frequency response and the AGC action of the system appeared to be very good.

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5. The question of the reliability of systems of this type was discussed at this meeting. The specifications for the present 10-mile system call for a reliability figure of 1 year. This reliability figure has been met by the contractor; however, for systems of longer length, such as the proposed 250-mile system, this reliability figure would be reduced considerably. For the proposed 250-mile system, with an increase of components in the repeaters and an increased number of repeaters (35 each), this reliability figure would drop to approximately 2 to 3 months. Two possibilities exist for eliminating this problem. One would be to increase the diameter of the cable and reduce the number of repeaters required. Another solution would be to do as most commercial cable companies do and parallel repeaters. By paralleling each repeater with another repeater, the reliability of the system could be extended to approximately one year. These figures are based on the recommended reliability figures assigned components by the [redacted] reliability group. 25X1A5a

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OC-E/R+D-EP/RFH:brc (26 Mar. 59)

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